SEQUENCE LISTING

<110> Valenzuela et al., David M.

<120> NOVEL TYROSINE KINASE RECEPTORS AND LIGANDS

<130> REG 195-BZ

<140> Not yet known
<141> Filed herewith

<150> 09/077,955
<151> 1998-09-10

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<151> 1996-12-13

<150> 08/644,271
<151> 1996-05-10

<150> 60/008,657
<151> 1995-12-15

<160> 36

<170> PatentIn Ver. 2.0

<210> 1
<211> 868
<212> PRT
<213> Rattus sp.

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Met Arg Glu Leu Val Asn Ile Pro Leu Leu Gln Met Leu Thr Leu Val
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Ala Phe Ser Gly Thr Glu Lys Leu Pro Lys Ala Pro Val Ile Thr Thr
             20                  25                  30

Pro Leu Glu Thr Val Asp Ala Leu Val Glu Glu Val Ala Thr Phe Met
         35                  40                  45

Cys Ala Val Glu Ser Tyr Pro Gln Pro Glu Ile Ser Trp Thr Arg Asn
     50                  55                  60

Lys Ile Leu Ile Lys Leu Phe Asp Thr Arg Tyr Ser Ile Arg Glu Asn
 65                  70                  75                  80

Gly Gln Leu Leu Thr Ile Leu Ser Val Glu Asp Ser Asp Asp Gly Ile
                 85                  90                  95

Tyr Cys Cys Thr Ala Asn Asn Gly Val Gly Gly Ala Val Glu Ser Cys
            100                 105                 110

Gly Ala Leu Gln Val Lys Met Lys Pro Lys Ile Thr Arg Pro Pro Ile
        115                 120                 125

Asn Val Lys Ile Ile Glu Gly Leu Lys Ala Val Leu Pro Cys Thr Thr
    130                 135                 140
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Met Gly Asn Pro Lys Pro Ser Val Ser Trp Ile Lys Gly Asp Ser Ala
145 150 155 160

Leu Arg Glu Asn Ser Arg Ile Ala Val Leu Glu Ser Gly Ser Leu Arg
165 170 175

Ile His Asn Val Gln Lys Glu Asp Ala Gly Gln Tyr Arg Cys Val Ala
180 185 190

Lys Asn Ser Leu Gly Thr Ala Tyr Ser Lys Leu Val Lys Leu Glu Val
195 200 205

Glu Val Phe Ala Arg Ile Leu Arg Ala Pro Glu Ser His Asn Val Thr
210 215 220

Phe Gly Ser Phe Val Thr Leu Arg Cys Thr Ala Ile Gly Met Pro Val
225 230 235 240

Pro Thr Ile Ser Trp Ile Glu Asn Gly Asn Ala Val Ser Ser Gly Ser
245 250 255

Ile Gln Glu Asn Val Lys Asp Arg Val Ile Asp Ser Arg Leu Gln Leu
260 265 270

Phe Ile Thr Lys Pro Gly Leu Tyr Thr Cys Ile Ala Thr Asn Lys His
275 280 285

Gly Glu Lys Phe Ser Thr Ala Lys Ala Ala Ala Thr Val Ser Ile Ala
290 295 300

Glu Trp Ser Lys Ser Gln Lys Glu Ser Lys Gly Tyr Cys Ala Gln Tyr
305 310 315 320

Arg Gly Glu Val Cys Asp Ala Val Leu Val Lys Asp Ser Leu Val Phe
325 330 335

Phe Asn Thr Ser Tyr Pro Asp Pro Glu Glu Ala Gln Glu Leu Leu Ile
340 345 350

His Thr Ala Trp Asn Glu Leu Lys Ala Val Ser Pro Leu Cys Arg Pro
355 360 365

Ala Ala Glu Ala Leu Leu Cys Asn His Leu Phe Gln Glu Cys Ser Pro
370 375 380

Gly Val Leu Pro Thr Pro Met Pro Ile Cys Arg Glu Tyr Cys Leu Ala
385 390 395 400

Val Lys Glu Leu Phe Cys Ala Lys Glu Trp Leu Ala Met Glu Gly Lys
405 410 415

Thr His Arg Gly Leu Tyr Arg Ser Gly Met His Phe Leu Pro Val Pro
420 425 430

Glu Cys Ser Lys Leu Pro Ser Met His Gln Asp Pro Thr Ala Cys Thr
435 440 445

Arg Leu Pro Tyr Leu Asp Tyr Lys Lys Glu Asn Ile Thr Thr Phe Pro
450 455 460

Ser Ile Thr Ser Ser Lys Pro Ser Val Asp Ile Pro Asn Leu Pro Ala
465 470 475 480

Ser Thr Ser Ser Phe Ala Val Ser Pro Ala Tyr Ser Met Thr Val Ile
485 490 495

Ile Ser Ile Met Ser Cys Phe Ala Val Phe Ala Leu Leu Thr Ile Thr
500 505 510

Thr Leu Tyr Cys Cys Arg Arg Arg Arg Glu Trp Lys Asn Lys Lys Arg
515 520 525

Glu Ser Ala Ala Val Thr Leu Thr Thr Leu Pro Ser Glu Leu Leu Leu
530 535 540

Asp Arg Leu His Pro Asn Pro Met Tyr Gln Arg Met Pro Leu Leu Leu
545 550 555 560

Asn Pro Lys Leu Leu Ser Leu Glu Tyr Pro Arg Asn Asn Ile Glu Tyr
565 570 575

Val Arg Asp Ile Gly Glu Gly Ala Phe Gly Arg Val Phe Gln Ala Arg
580 585 590

Ala Pro Gly Leu Leu Pro Tyr Glu Pro Phe Thr Met Val Ala Val Lys
595 600 605

Met Leu Lys Glu Glu Ala Ser Ala Asp Met Gln Ala Asp Phe Gln Arg
610 615 620

Glu Ala Ala Leu Met Ala Glu Phe Asp Asn Pro Asn Ile Val Lys Leu
625 630 635 640

Leu Gly Val Cys Ala Val Gly Lys Pro Met Cys Leu Leu Phe Glu Tyr
645 650 655

Met Ala Tyr Gly Asp Leu Asn Glu Phe Leu Arg Ser Met Ser Pro His
660 665 670

Thr Val Cys Ser Leu Ser His Ser Asp Leu Ser Thr Arg Ala Arg Val
675 680 685

Ser Ser Pro Gly Pro Pro Pro Leu Ser Cys Ala Glu Gln Leu Cys Ile
690 695 700

Ala Arg Gln Val Ala Ala Gly Met Ala Tyr Leu Ser Glu Arg Lys Phe
705 710 715 720

Val His Arg Asp Leu Ala Thr Arg Asn Cys Leu Val Gly Glu Asn Met
725 730 735

Val Val Lys Ile Ala Asp Phe Gly Leu Ser Arg Asn Ile Tyr Ser Ala
740 745 750

Asp Tyr Tyr Lys Ala Asp Gly Asn Asp Ala Ile Pro Ile Arg Trp Met
755 760 765

Pro Pro Glu Ser Ile Phe Tyr Asn Arg Tyr Thr Thr Glu Ser Asp Val
770 775 780

Trp Ala Tyr Gly Val Val Leu Trp Glu Ile Phe Ser Tyr Gly Leu Gln
785 790 795 800

Pro Tyr Tyr Gly Met Ala His Glu Glu Val Ile Tyr Tyr Val Arg Asp
805 810 815

Gly Asn Ile Leu Ala Cys Pro Glu Asn Cys Pro Leu Glu Leu Tyr Asn
820 825 830

Leu Met Arg Leu Cys Trp Ser Lys Leu Pro Ala Asp Arg Pro Ser Phe
835 840 845

Cys Ser Ile His Arg Ile Leu Gln Arg Met Cys Glu Arg Ala Glu Gly
850 855 860

Thr Val Gly Val
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<212> DNA
<213> Rattus sp.

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<223> n=a, c, g, or t

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<210> 3
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 3
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<210> 4
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
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<220>
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<222> (18)
<223> n=a, c, g, or t

<220>
<221> modified_base

<222> (24)
<223> n=a, c, g, or t

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<210> 5
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 5
Asp Leu Ala Thr Arg Asn
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<210> 6
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
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<222> (26)
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tcttgactcg agayytngcn acnmgnaa 28

<210> 7
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 7
Asp Leu Ala Ala Arg Asn
1 5

<210> 8
<211> 28
<212> DNA
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tcttgactcg agayytngcn gcnmgnaa 28

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<212> PRT
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<220>
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Asp Val Trp Ser Leu Gly
1 5

<210> 10
<211> 29
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<220>
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<220>
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<222> (12)
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<210> 11
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<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 11
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1 5

<210> 12
<211> 29
<212> DNA
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<220>
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<210> 13
<211> 6
<212> PRT
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<220>
<223> Description of Artificial Sequence: primer

<400> 13
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<210> 14
<211> 29
<212> DNA
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<220>
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<220>
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<223> n=a, c, g, or t

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<210> 15
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<220>
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<210> 16
<211> 18
<212> PRT
<213> Gallus gallus

<400> 16
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1 5 10 15

Tyr Gln

<210> 17
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 17
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<210> 18
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 18
gtgcacatcc acaatggc 18

<210> 19
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 19
gagcagaggg aaggttccct g 21

<210> 20
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 20
tcattgtccc agctgcgtgg 20

<210> 21
<211> 41
<212> DNA
<213> Homo sapiens

<400> 21
gagagaggtt taaacatgag cccctgccag cccaacccct g 41

<210> 22
<211> 39
<212> DNA
<213> Homo sapiens

<400> 22
ctctgcggcc gcttatcatg gggtggggca gggccgcag 39

<210> 23
<211> 49
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 23
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<210> 24
<211> 40
<212> DNA
<213> Artificial Sequence

<220>
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<400> 24
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<210> 25
<211> 456
<212> PRT
<213> Homo sapiens

<400> 25
Met Ser Ala Leu Leu Ile Leu Ala Leu Val Gly Ala Ala Val Ala Asp
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Tyr Lys Asp Asp Asp Asp Lys Gln Thr Ala Ser Gly Gln Asp Gly Ser
20 25 30

Gly Pro Phe Leu Ala Asp Phe Asn Gly Phe Ser His Leu Glu Leu Arg
35 40 45

Gly Leu His Thr Phe Ala Arg Asp Leu Gly Glu Lys Met Ala Leu Glu
50 55 60

Val Val Phe Leu Ala Arg Gly Pro Ser Gly Leu Leu Leu Tyr Asn Gly
65 70 75 80

Gln Lys Thr Asp Gly Lys Gly Asp Phe Val Ser Leu Ala Leu Arg Asp
85 90 95

Arg Arg Leu Glu Phe Arg Tyr Asp Leu Gly Lys Gly Ala Ala Val Ile
100 105 110

Arg Ser Arg Glu Pro Val Thr Leu Gly Ala Trp Thr Arg Val Ser Leu
115 120 125

Glu Arg Asn Gly Arg Lys Gly Ala Leu Arg Val Gly Asp Gly Pro Arg
130 135 140

Val Leu Gly Glu Ser Pro Lys Ser Arg Lys Val Pro His Thr Val Leu
145 150 155 160

Asn Leu Lys Glu Pro Leu Tyr Val Gly Gly Ala Pro Asp Phe Ser Lys
165 170 175

Leu Ala Arg Ala Ala Ala Val Ser Ser Gly Phe Asp Gly Ala Ile Gln
180 185 190

Leu Val Ser Leu Gly Gly Arg Gln Leu Leu Thr Pro Glu His Val Leu
195 200 205

Arg Gln Val Asp Val Thr Ser Phe Ala Gly His Pro Cys Thr Arg Ala
210 215 220

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Ser Gly His Pro Cys Leu Asn Gly Ala Ser Cys Val Pro Arg Glu Ala
225                 230                 235                 240

Ala Tyr Val Cys Leu Cys Pro Gly Gly Phe Ser Gly Pro His Cys Glu
                245                 250                 255

Lys Gly Leu Val Glu Lys Ser Ala Gly Asp Val Asp Thr Leu Ala Phe
            260                 265                 270

Asp Gly Arg Thr Phe Val Glu Tyr Leu Asn Ala Val Thr Glu Ser Glu
        275                 280                 285

Leu Ala Asn Glu Ile Pro Val Glu Lys Ala Leu Gln Ser Asn His Phe
    290                 295                 300

Glu Leu Ser Leu Arg Thr Glu Ala Thr Gln Gly Leu Val Leu Trp Ser
305                 310                 315                 320

Gly Lys Ala Thr Glu Arg Ala Asp Tyr Val Ala Leu Ala Ile Val Asp
                325                 330                 335

Gly His Leu Gln Leu Ser Tyr Asn Leu Gly Ser Gln Pro Val Val Leu
            340                 345                 350

Arg Ser Thr Val Pro Val Asn Thr Asn Arg Trp Leu Arg Val Val Ala
        355                 360                 365

His Arg Glu Gln Arg Glu Gly Ser Leu Gln Val Gly Asn Glu Ala Pro
    370                 375                 380

Val Thr Gly Ser Ser Pro Leu Gly Ala Thr Gln Leu Asp Thr Asp Gly
385                 390                 395                 400

Ala Leu Trp Leu Gly Gly Leu Pro Glu Leu Pro Val Gly Pro Ala Leu
                405                 410                 415

Pro Lys Ala Tyr Gly Thr Gly Phe Val Gly Cys Leu Arg Asp Val Val
            420                 425                 430

Val Gly Arg His Pro Leu His Leu Leu Glu Asp Ala Val Thr Lys Pro
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Glu Leu Arg Pro Cys Pro Thr Pro
    450                 455
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<210> 26
<211> 440
<212> PRT
<213> Homo sapiens

<400> 26

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Met Ser Ala Leu Leu Ile Leu Ala Leu Val Gly Ala Ala Val Ala Asp
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Tyr Lys Asp Asp Asp Asp Lys Asn Gly Phe Ser His Leu Glu Leu Arg
             20                  25                  30

Gly Leu His Thr Phe Ala Arg Asp Leu Gly Glu Lys Met Ala Leu Glu
         35                  40                  45
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Val Val Phe Leu Ala Arg Gly Pro Ser Gly Leu Leu Leu Tyr Asn Gly
50 55 60

Gln Lys Thr Asp Gly Lys Gly Asp Phe Val Ser Leu Ala Leu Arg Asp
65 70 75 80

Arg Arg Leu Glu Phe Arg Tyr Asp Leu Gly Lys Gly Ala Ala Val Ile
85 90 95

Arg Ser Arg Glu Pro Val Thr Leu Gly Ala Trp Thr Arg Val Ser Leu
100 105 110

Glu Arg Asn Gly Arg Lys Gly Ala Leu Arg Val Gly Asp Gly Pro Arg
115 120 125

Val Leu Gly Glu Ser Pro Lys Ser Arg Lys Val Pro His Thr Val Leu
130 135 140

Asn Leu Lys Glu Pro Leu Tyr Val Gly Gly Ala Pro Asp Phe Ser Lys
145 150 155 160

Leu Ala Arg Ala Ala Ala Val Ser Ser Gly Phe Asp Gly Ala Ile Gln
165 170 175

Leu Val Ser Leu Gly Gly Arg Gln Leu Leu Thr Pro Glu His Val Leu
180 185 190

Arg Gln Val Asp Val Thr Ser Phe Ala Gly His Pro Cys Thr Arg Ala
195 200 205

Ser Gly His Pro Cys Leu Asn Gly Ala Ser Cys Val Pro Arg Glu Ala
210 215 220

Ala Tyr Val Cys Leu Cys Pro Gly Gly Phe Ser Gly Pro His Cys Glu
225 230 235 240

Lys Gly Leu Val Glu Lys Ser Ala Gly Asp Val Asp Thr Leu Ala Phe
245 250 255

Asp Gly Arg Thr Phe Val Glu Tyr Leu Asn Ala Val Thr Glu Ser Glu
260 265 270

Leu Ala Asn Glu Ile Pro Val Glu Lys Ala Leu Gln Ser Asn His Phe
275 280 285

Glu Leu Ser Leu Arg Thr Glu Ala Thr Gln Gly Leu Val Leu Trp Ser
290 295 300

Gly Lys Ala Thr Glu Arg Ala Asp Tyr Val Ala Leu Ala Ile Val Asp
305 310 315 320

Gly His Leu Gln Leu Ser Tyr Asn Leu Gly Ser Gln Pro Val Val Leu
325 330 335

Arg Ser Thr Val Pro Val Asn Thr Asn Arg Trp Leu Arg Val Val Ala
340 345 350

His Arg Glu Gln Arg Glu Gly Ser Leu Gln Val Gly Asn Glu Ala Pro
355 360 365

Val Thr Gly Ser Ser Pro Leu Gly Ala Thr Gln Leu Asp Thr Asp Gly
370 375 380

Ala Leu Trp Leu Gly Gly Leu Pro Glu Leu Pro Val Gly Pro Ala Leu
385 390 395 400

Pro Lys Ala Tyr Gly Thr Gly Phe Val Gly Cys Leu Arg Asp Val Val
405 410 415

Val Gly Arg His Pro Leu His Leu Leu Glu Asp Ala Val Thr Lys Pro
420 425 430

Glu Leu Arg Pro Cys Pro Thr Pro
435 440

<210> 27
<211> 390
<212> PRT
<213> Homo sapiens

<400> 27
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Tyr Lys Asp Asp Asp Asp Lys Val Ser Leu Ala Leu Arg Asp Arg Arg
20 25 30

Leu Glu Phe Arg Tyr Asp Leu Gly Lys Gly Ala Ala Val Ile Arg Ser
35 40 45

Arg Glu Pro Val Thr Leu Gly Ala Trp Thr Arg Val Ser Leu Glu Arg
50 55 60

Asn Gly Arg Lys Gly Ala Leu Arg Val Gly Asp Gly Pro Arg Val Leu
65 70 75 80

Gly Glu Ser Pro Lys Ser Arg Lys Val Pro His Thr Val Leu Asn Leu
85 90 95

Lys Glu Pro Leu Tyr Val Gly Gly Ala Pro Asp Phe Ser Lys Leu Ala
100 105 110

Arg Ala Ala Ala Val Ser Ser Gly Phe Asp Gly Ala Ile Gln Leu Val
115 120 125

Ser Leu Gly Gly Arg Gln Leu Leu Thr Pro Glu His Val Leu Arg Gln
130 135 140

Val Asp Val Thr Ser Phe Ala Gly His Pro Cys Thr Arg Ala Ser Gly
145 150 155 160

His Pro Cys Leu Asn Gly Ala Ser Cys Val Pro Arg Glu Ala Ala Tyr
165 170 175

Val Cys Leu Cys Pro Gly Gly Phe Ser Gly Pro His Cys Glu Lys Gly
180 185 190

Leu Val Glu Lys Ser Ala Gly Asp Val Asp Thr Leu Ala Phe Asp Gly
195 200 205

Arg Thr Phe Val Glu Tyr Leu Asn Ala Val Thr Glu Ser Glu Leu Ala
210 215 220

Asn Glu Ile Pro Val Glu Lys Ala Leu Gln Ser Asn His Phe Glu Leu
225 230 235 240

Ser Leu Arg Thr Glu Ala Thr Gln Gly Leu Val Leu Trp Ser Gly Lys
245 250 255

Ala Thr Glu Arg Ala Asp Tyr Val Ala Leu Ala Ile Val Asp Gly His
260 265 270

Leu Gln Leu Ser Tyr Asn Leu Gly Ser Gln Pro Val Val Leu Arg Ser
275 280 285

Thr Val Pro Val Asn Thr Asn Arg Trp Leu Arg Val Val Ala His Arg
290 295 300

Glu Gln Arg Glu Gly Ser Leu Gln Val Gly Asn Glu Ala Pro Val Thr
305 310 315 320

Gly Ser Ser Pro Leu Gly Ala Thr Gln Leu Asp Thr Asp Gly Ala Leu
325 330 335

Trp Leu Gly Gly Leu Pro Glu Leu Pro Val Gly Pro Ala Leu Pro Lys
340 345 350

Ala Tyr Gly Thr Gly Phe Val Gly Cys Leu Arg Asp Val Val Val Gly
355 360 365

Arg His Pro Leu His Leu Leu Glu Asp Ala Val Thr Lys Pro Glu Leu
370 375 380

Arg Pro Cys Pro Thr Pro
385 390

<210> 28
<211> 338
<212> PRT
<213> Homo sapiens

<400> 28
Met Ser Ala Leu Leu Ile Leu Ala Leu Val Gly Ala Ala Val Ala Asp
1 5 10 15

Tyr Lys Asp Asp Asp Asp Lys Gly Pro Arg Val Leu Gly Glu Ser Pro
20 25 30

Lys Ser Arg Lys Val Pro His Thr Val Leu Asn Leu Lys Glu Pro Leu
35 40 45

Tyr Val Gly Gly Ala Pro Asp Phe Ser Lys Leu Ala Arg Ala Ala Ala
50 55 60

Val Ser Ser Gly Phe Asp Gly Ala Ile Gln Leu Val Ser Leu Gly Gly
65 70 75 80

Arg Gln Leu Leu Thr Pro Glu His Val Leu Arg Gln Val Asp Val Thr
85 90 95

Ser Phe Ala Gly His Pro Cys Thr Arg Ala Ser Gly His Pro Cys Leu
100 105 110

Asn Gly Ala Ser Cys Val Pro Arg Glu Ala Ala Tyr Val Cys Leu Cys
115 120 125

Pro Gly Gly Phe Ser Gly Pro His Cys Glu Lys Gly Leu Val Glu Lys
130 135 140

Ser Ala Gly Asp Val Asp Thr Leu Ala Phe Asp Gly Arg Thr Phe Val
145 150 155 160

Glu Tyr Leu Asn Ala Val Thr Glu Ser Glu Leu Ala Asn Glu Ile Pro
165 170 175

Val Glu Lys Ala Leu Gln Ser Asn His Phe Glu Leu Ser Leu Arg Thr
180 185 190

Glu Ala Thr Gln Gly Leu Val Leu Trp Ser Gly Lys Ala Thr Glu Arg
195 200 205

Ala Asp Tyr Val Ala Leu Ala Ile Val Asp Gly His Leu Gln Leu Ser
210 215 220

Tyr Asn Leu Gly Ser Gln Pro Val Val Leu Arg Ser Thr Val Pro Val
225 230 235 240

Asn Thr Asn Arg Trp Leu Arg Val Val Ala His Arg Glu Gln Arg Glu
245 250 255

Gly Ser Leu Gln Val Gly Asn Glu Ala Pro Val Thr Gly Ser Ser Pro
260 265 270

Leu Gly Ala Thr Gln Leu Asp Thr Asp Gly Ala Leu Trp Leu Gly Gly
275 280 285

Leu Pro Glu Leu Pro Val Gly Pro Ala Leu Pro Lys Ala Tyr Gly Thr
290 295 300

Gly Phe Val Gly Cys Leu Arg Asp Val Val Val Gly Arg His Pro Leu
305 310 315 320

His Leu Leu Glu Asp Ala Val Thr Lys Pro Glu Leu Arg Pro Cys Pro
325 330 335

Thr Pro

<210> 29
<211> 294
<212> PRT
<213> Homo sapiens

<400> 29
Met Ser Ala Leu Leu Ile Leu Ala Leu Val Gly Ala Ala Val Ala Asp
1 5 10 15

Tyr Lys Asp Asp Asp Asp Lys Gly Phe Asp Gly Ala Ile Gln Leu Val
20 25 30

```
Ser Leu Gly Gly Arg Gln Leu Leu Thr Pro Glu His Val Leu Arg Gln
         35                  40                  45

Val Asp Val Thr Ser Phe Ala Gly His Pro Cys Thr Arg Ala Ser Gly
     50                  55                  60

His Pro Cys Leu Asn Gly Ala Ser Cys Val Pro Arg Glu Ala Ala Tyr
 65                  70                  75                  80

Val Cys Leu Cys Pro Gly Gly Phe Ser Gly Pro His Cys Glu Lys Gly
                 85                  90                  95

Leu Val Glu Lys Ser Ala Gly Asp Val Asp Thr Leu Ala Phe Asp Gly
            100                 105                 110

Arg Thr Phe Val Glu Tyr Leu Asn Ala Val Thr Glu Ser Glu Leu Ala
        115                 120                 125

Asn Glu Ile Pro Val Glu Lys Ala Leu Gln Ser Asn His Phe Glu Leu
    130                 135                 140

Ser Leu Arg Thr Glu Ala Thr Gln Gly Leu Val Leu Trp Ser Gly Lys
145                 150                 155                 160

Ala Thr Glu Arg Ala Asp Tyr Val Ala Leu Ala Ile Val Asp Gly His
                165                 170                 175

Leu Gln Leu Ser Tyr Asn Leu Gly Ser Gln Pro Val Val Leu Arg Ser
            180                 185                 190

Thr Val Pro Val Asn Thr Asn Arg Trp Leu Arg Val Val Ala His Arg
        195                 200                 205

Glu Gln Arg Glu Gly Ser Leu Gln Val Gly Asn Glu Ala Pro Val Thr
    210                 215                 220

Gly Ser Ser Pro Leu Gly Ala Thr Gln Leu Asp Thr Asp Gly Ala Leu
225                 230                 235                 240

Trp Leu Gly Gly Leu Pro Glu Leu Pro Val Gly Pro Ala Leu Pro Lys
                245                 250                 255

Ala Tyr Gly Thr Gly Phe Val Gly Cys Leu Arg Asp Val Val Val Gly
            260                 265                 270

Arg His Pro Leu His Leu Leu Glu Asp Ala Val Thr Lys Pro Glu Leu
        275                 280                 285

Arg Pro Cys Pro Thr Pro
    290
```

<210> 30
<211> 256
<212> PRT
<213> Homo sapiens

<400> 30

```
Met Ser Ala Leu Leu Ile Leu Ala Leu Val Gly Ala Ala Val Ala Asp
  1               5                  10                  15
```

```
Tyr Lys Asp Asp Asp Asp Lys Ala Ser Gly His Pro Cys Leu Asn Gly
            20                  25                  30

Ala Ser Cys Val Pro Arg Glu Ala Ala Tyr Val Cys Leu Cys Pro Gly
        35                  40                  45

Gly Phe Ser Gly Pro His Cys Glu Lys Gly Leu Val Glu Lys Ser Ala
    50                  55                  60

Gly Asp Val Asp Thr Leu Ala Phe Asp Gly Arg Thr Phe Val Glu Tyr
65                  70                  75                  80

Leu Asn Ala Val Thr Glu Ser Glu Leu Ala Asn Glu Ile Pro Val Glu
                85                  90                  95

Lys Ala Leu Gln Ser Asn His Phe Glu Leu Ser Leu Arg Thr Glu Ala
            100                 105                 110

Thr Gln Gly Leu Val Leu Trp Ser Gly Lys Ala Thr Glu Arg Ala Asp
        115                 120                 125

Tyr Val Ala Leu Ala Ile Val Asp Gly His Leu Gln Leu Ser Tyr Asn
    130                 135                 140

Leu Gly Ser Gln Pro Val Val Leu Arg Ser Thr Val Pro Val Asn Thr
145                 150                 155                 160

Asn Arg Trp Leu Arg Val Val Ala His Arg Glu Gln Arg Glu Gly Ser
                165                 170                 175

Leu Gln Val Gly Asn Glu Ala Pro Val Thr Gly Ser Ser Pro Leu Gly
            180                 185                 190

Ala Thr Gln Leu Asp Thr Asp Gly Ala Leu Trp Leu Gly Gly Leu Pro
        195                 200                 205

Glu Leu Pro Val Gly Pro Ala Leu Pro Lys Ala Tyr Gly Thr Gly Phe
    210                 215                 220

Val Gly Cys Leu Arg Asp Val Val Val Gly Arg His Pro Leu His Leu
225                 230                 235                 240

Leu Glu Asp Ala Val Thr Lys Pro Glu Leu Arg Pro Cys Pro Thr Pro
                245                 250                 255
```

<210> 31
<211> 216
<212> PRT
<213> Homo sapiens

```
<400> 31
Met Ser Ala Leu Leu Ile Leu Ala Leu Val Gly Ala Ala Val Ala Asp
  1               5                  10                  15

Tyr Lys Asp Asp Asp Asp Lys Ala Gly Asp Val Asp Thr Leu Ala Phe
            20                  25                  30
```

Asp Gly Arg Thr Phe Val Glu Tyr Leu Asn Ala Val Thr Glu Ser Glu
35 40 45

Leu Ala Asn Glu Ile Pro Val Glu Lys Ala Leu Gln Ser Asn His Phe
50 55 60

Glu Leu Ser Leu Arg Thr Glu Ala Thr Gln Gly Leu Val Leu Trp Ser
65 70 75 80

Gly Lys Ala Thr Glu Arg Ala Asp Tyr Val Ala Leu Ala Ile Val Asp
85 90 95

Gly His Leu Gln Leu Ser Tyr Asn Leu Gly Ser Gln Pro Val Val Leu
100 105 110

Arg Ser Thr Val Pro Val Asn Thr Asn Arg Trp Leu Arg Val Val Ala
115 120 125

His Arg Glu Gln Arg Glu Gly Ser Leu Gln Val Gly Asn Glu Ala Pro
130 135 140

Val Thr Gly Ser Ser Pro Leu Gly Ala Thr Gln Leu Asp Thr Asp Gly
145 150 155 160

Ala Leu Trp Leu Gly Gly Leu Pro Glu Leu Pro Val Gly Pro Ala Leu
165 170 175

Pro Lys Ala Tyr Gly Thr Gly Phe Val Gly Cys Leu Arg Asp Val Val
180 185 190

Val Gly Arg His Pro Leu His Leu Leu Glu Asp Ala Val Thr Lys Pro
195 200 205

Glu Leu Arg Pro Cys Pro Thr Pro
210 215

<210> 32
<211> 2610
<212> DNA
<213> Homo sapiens

<400> 32
atgagagagc tcgtcaacat tccactggta catattctta ctctggttgc cttcagcgga 60
actgagaaac ttccaaaagc tcctgtcatc accactcctc ttgaaacagt ggatgcctta 120
gttgaagaag tggctacttt catgtgtgca gtggaatcct acccccagcc tgagatttcc 180
tggactagaa ataaaattct cattaaactc tttgacaccc ggtacagcat ccgggagaat 240
gggcagctcc tcaccatcct gagtgtggaa gacagtgatg atggcattta ctgctgcacg 300
gccaacaatg gtgtgggagg agctgtggag agttgtggag ccctgcaagt gaagatgaaa 360
cctaaaataa ctcgccctcc cataaatgtg aaaataatag agggattaaa agcagtccta 420
ccatgtacta caatgggtaa tcccaaacca tcagtgtctt ggataaaggg agacagccct 480
ctcagggaaa attcccgaat tgcagttctt gaatctggga gcttgaggat tcataacgta 540
caaaaggaag atgcaggaca gtatcgatgt gtggcaaaaa acagcctcgg gacagcatat 600
tccaaagtgg tgaagctgga agttgaggtt tttgccagga tcctgcgggc tcctgaatcc 660
cacaatgtca cctttggctc ctttgtgacc ctgcactgta cagcaacagg cattcctgtc 720
cccaccatca cctggattga aaacggaaat gctgtttctt ctgggtccat tcaagagagt 780
gtgaaagacc gagtgattga ctcaagactg cagctgttta tcaccaagcc aggactctac 840
acatgcatag ctaccaataa gcatggggag aagttcagta ctgccaaggc tgcagccacc 900
atcagcatag cagaatggag taaaccacag aaagataaca aaggctactg cgcccagtac 960
agaggggagg tgtgtaatgc agtcctggca aaagatgctc ttgtttttct caacacctcc 1020
tatgcggacc ctgaggaggc ccaagagcta ctggtccaca cggcctggaa tgaactgaaa 1080

gtagtgagcc cagtctgccg gccagctgct gaggctttgt tgtgtaacca catcttccag 1140
gagtgcagtc ctggagtagt gcctactcct attcccattt gcagagagta ctgcttggca 1200
gtaaaggagc tcttctgcgc aaaagaatgg ctggtaatgg aagagaagac ccacagagga 1260
ctctacagat ccgagatgca tttgctgtcc gtgccagaat gcagcaagct tcccagcatg 1320
cattgggacc ccacggcctg tgccagactg ccacatctag attataacaa agaaaaccta 1380
aaaacattcc caccaatgac gtcctcaaag ccaagtgtgg acattccaaa tctgccttcc 1440
tcctcctctt cttccttctc tgtctcacct acatactcca tgactgtaat aatctccatc 1500
atgtccagct ttgcaatatt tgtgcttctt accataacta ctctctattg ctgccgaaga 1560
agaaaacaat ggaaaaataa gaaaagagaa tcagcagcag taaccctcac cacactgcct 1620
tctgagctct tactagatag acttcatccc aaccccatgt accagaggat gccgctcctt 1680
ctgaacccca aattgctcag cctggagtat ccaaggaata acattgaata tgtgagagac 1740
atcggagagg gagcgtttgg aagggtgttt caagcaaggg caccaggctt acttccctat 1800
gaacctttca ctatggtggc agtaaagatg ctcaaagaag aagcctcggc agatatgcaa 1860
gcggactttc agagggaggc agccctcatg gcagaatttg acaaccctaa cattgtgaag 1920
ctattaggag tgtgtgctgt cgggaagcca atgtgcctgc tctttgaata catggcctat 1980
ggtgacctca atgagttcct ccgcagcatg tcccctcaca ccgtgtgcag cctcagtcac 2040
agtgacttgt ctatgagggc tcaggtctcc agccctgggc ccccaccccc ctcctgtgct 2100
gagcagcttt gcattgccag gcaggtggca gctggcatgg cttacctctc agaacgtaag 2160
tttgttcacc gagatttagc caccaggaac tgcctggtgg gcgagaacat ggtggtgaaa 2220
attgccgact ttggcctctc caggaacatc tactcagcag actactacaa agctaatgaa 2280
aacgacgcta tccctatccg ttggatgcca ccagagtcca ttttttataa ccgctacact 2340
acagagtctg atgtgtgggc ctatggcgtg gtcctctggg agatcttctc ctatggcctg 2400
cagccctact atgggatggc ccatgaggag gtcatttact acgtgcgaga tggcaacatc 2460
ctctcctgcc ctgagaactg ccccgtggag ctgtacaatc tcatgcgtct atgttggagc 2520
aagctgcctg cagacagacc cagtttcacc agtattcacc gaattctgga acgcatgtgt 2580
gagagggcag agggaactgt gagtgtctaa 2610

<210> 33
<211> 869
<212> PRT
<213> Homo sapiens

<400> 33
Met Arg Glu Leu Val Asn Ile Pro Leu Val His Ile Leu Thr Leu Val
1 5 10 15

Ala Phe Ser Gly Thr Glu Lys Leu Pro Lys Ala Pro Val Ile Thr Thr
20 25 30

Pro Leu Glu Thr Val Asp Ala Leu Val Glu Glu Val Ala Thr Phe Met
35 40 45

Cys Ala Val Glu Ser Tyr Pro Gln Pro Glu Ile Ser Trp Thr Arg Asn
50 55 60

Lys Ile Leu Ile Lys Leu Phe Asp Thr Arg Tyr Ser Ile Arg Glu Asn
65 70 75 80

Gly Gln Leu Leu Thr Ile Leu Ser Val Glu Asp Ser Asp Asp Gly Ile
85 90 95

Tyr Cys Cys Thr Ala Asn Asn Gly Val Gly Gly Ala Val Glu Ser Cys
100 105 110

Gly Ala Leu Gln Val Lys Met Lys Pro Lys Ile Thr Arg Pro Pro Ile
115 120 125

Asn Val Lys Ile Ile Glu Gly Leu Lys Ala Val Leu Pro Cys Thr Thr
130 135 140

Met Gly Asn Pro Lys Pro Ser Val Ser Trp Ile Lys Gly Asp Ser Pro
145 150 155 160

Leu Arg Glu Asn Ser Arg Ile Ala Val Leu Glu Ser Gly Ser Leu Arg
165 170 175

Ile His Asn Val Gln Lys Glu Asp Ala Gly Gln Tyr Arg Cys Val Ala
180 185 190

Lys Asn Ser Leu Gly Thr Ala Tyr Ser Lys Val Val Lys Leu Glu Val
195 200 205

Glu Val Phe Ala Arg Ile Leu Arg Ala Pro Glu Ser His Asn Val Thr
210 215 220

Phe Gly Ser Phe Val Thr Leu His Cys Thr Ala Thr Gly Ile Pro Val
225 230 235 240

Pro Thr Ile Thr Trp Ile Glu Asn Gly Asn Ala Val Ser Ser Gly Ser
245 250 255

Ile Gln Glu Ser Val Lys Asp Arg Val Ile Asp Ser Arg Leu Gln Leu
260 265 270

Phe Ile Thr Lys Pro Gly Leu Tyr Thr Cys Ile Ala Thr Asn Lys His
275 280 285

Gly Glu Lys Phe Ser Thr Ala Lys Ala Ala Ala Thr Ile Ser Ile Ala
290 295 300

Glu Trp Ser Lys Pro Gln Lys Asp Asn Lys Gly Tyr Cys Ala Gln Tyr
305 310 315 320

Arg Gly Glu Val Cys Asn Ala Val Leu Ala Lys Asp Ala Leu Val Phe
325 330 335

Leu Asn Thr Ser Tyr Ala Asp Pro Glu Glu Ala Gln Glu Leu Leu Val
340 345 350

His Thr Ala Trp Asn Glu Leu Lys Val Val Ser Pro Val Cys Arg Pro
355 360 365

Ala Ala Glu Ala Leu Leu Cys Asn His Ile Phe Gln Glu Cys Ser Pro
370 375 380

Gly Val Val Pro Thr Pro Ile Pro Ile Cys Arg Glu Tyr Cys Leu Ala
385 390 395 400

Val Lys Glu Leu Phe Cys Ala Lys Glu Trp Leu Val Met Glu Glu Lys
405 410 415

Thr His Arg Gly Leu Tyr Arg Ser Glu Met His Leu Leu Ser Val Pro
420 425 430

Glu Cys Ser Lys Leu Pro Ser Met His Trp Asp Pro Thr Ala Cys Ala
435 440 445

Arg Leu Pro His Leu Asp Tyr Asn Lys Glu Asn Leu Lys Thr Phe Pro
450 455 460

Pro Met Thr Ser Ser Lys Pro Ser Val Asp Ile Pro Asn Leu Pro Ser
465 470 475 480

Ser Ser Ser Ser Ser Phe Ser Val Ser Pro Thr Tyr Ser Met Thr Val
485 490 495

Ile Ile Ser Ile Met Ser Ser Phe Ala Ile Phe Val Leu Leu Thr Ile
500 505 510

Thr Thr Leu Tyr Cys Cys Arg Arg Arg Lys Gln Trp Lys Asn Lys Lys
515 520 525

Arg Glu Ser Ala Ala Val Thr Leu Thr Thr Leu Pro Ser Glu Leu Leu
530 535 540

Leu Asp Arg Leu His Pro Asn Pro Met Tyr Gln Arg Met Pro Leu Leu
545 550 555 560

Leu Asn Pro Lys Leu Leu Ser Leu Glu Tyr Pro Arg Asn Asn Ile Glu
565 570 575

Tyr Val Arg Asp Ile Gly Glu Gly Ala Phe Gly Arg Val Phe Gln Ala
580 585 590

Arg Ala Pro Gly Leu Leu Pro Tyr Glu Pro Phe Thr Met Val Ala Val
595 600 605

Lys Met Leu Lys Glu Glu Ala Ser Ala Asp Met Gln Ala Asp Phe Gln
610 615 620

Arg Glu Ala Ala Leu Met Ala Glu Phe Asp Asn Pro Asn Ile Val Lys
625 630 635 640

Leu Leu Gly Val Cys Ala Val Gly Lys Pro Met Cys Leu Leu Phe Glu
645 650 655

Tyr Met Ala Tyr Gly Asp Leu Asn Glu Phe Leu Arg Ser Met Ser Pro
660 665 670

His Thr Val Cys Ser Leu Ser His Ser Asp Leu Ser Met Arg Ala Gln
675 680 685

Val Ser Ser Pro Gly Pro Pro Pro Leu Ser Cys Ala Glu Gln Leu Cys
690 695 700

Ile Ala Arg Gln Val Ala Ala Gly Met Ala Tyr Leu Ser Glu Arg Lys
705 710 715 720

Phe Val His Arg Asp Leu Ala Thr Arg Asn Cys Leu Val Gly Glu Asn
725 730 735

Met Val Val Lys Ile Ala Asp Phe Gly Leu Ser Arg Asn Ile Tyr Ser
740 745 750

Ala Asp Tyr Tyr Lys Ala Asn Glu Asn Asp Ala Ile Pro Ile Arg Trp
755 760 765

Met Pro Pro Glu Ser Ile Phe Tyr Asn Arg Tyr Thr Thr Glu Ser Asp
770 775 780

Val Trp Ala Tyr Gly Val Val Leu Trp Glu Ile Phe Ser Tyr Gly Leu
785 790 795 800

Gln Pro Tyr Tyr Gly Met Ala His Glu Glu Val Ile Tyr Tyr Val Arg
805 810 815

Asp Gly Asn Ile Leu Ser Cys Pro Glu Asn Cys Pro Val Glu Leu Tyr
820 825 830

Asn Leu Met Arg Leu Cys Trp Ser Lys Leu Pro Ala Asp Arg Pro Ser
835 840 845

Phe Thr Ser Ile His Arg Ile Leu Glu Arg Met Cys Glu Arg Ala Glu
850 855 860

Gly Thr Val Ser Val
865

<210> 34
<211> 1940
<212> PRT
<213> Rattus sp.

<400> 34
Met Pro Pro Leu Pro Leu Glu His Arg Pro Arg Gln Glu Pro Gly Ala
1 5 10 15

Ser Met Leu Val Arg Tyr Phe Met Ile Pro Cys Asn Ile Cys Leu Ile
20 25 30

Leu Leu Ala Thr Ser Thr Leu Gly Phe Ala Val Leu Leu Phe Leu Ser
35 40 45

Asn Tyr Lys Pro Gly Ile His Phe Thr Pro Ala Pro Pro Thr Pro Pro
50 55 60

Asp Val Cys Arg Gly Met Leu Cys Gly Phe Gly Ala Val Cys Glu Pro
65 70 75 80

Ser Val Glu Asp Pro Gly Arg Ala Ser Cys Val Cys Lys Lys Asn Ala
85 90 95

Cys Pro Ala Thr Val Ala Pro Val Cys Gly Ser Asp Ala Ser Thr Tyr
100 105 110

Ser Asn Glu Cys Glu Leu Gln Arg Ala Gln Cys Asn Gln Gln Arg Arg
115 120 125

Ile Arg Leu Leu Arg Gln Gly Pro Cys Gly Ser Arg Asp Pro Cys Ala
130 135 140

Asn Val Thr Cys Ser Phe Gly Ser Thr Cys Val Pro Ser Ala Asp Gly
145 150 155 160

Gln Thr Ala Ser Cys Leu Cys Pro Thr Thr Cys Phe Gly Ala Pro Asp
165 170 175

Gly Thr Val Cys Gly Ser Asp Gly Val Asp Tyr Pro Ser Glu Cys Gln
180 185 190

Leu Leu Ser His Ala Cys Ala Ser Gln Glu His Ile Phe Lys Lys Phe
195 200 205

Asn Gly Pro Cys Asp Pro Cys Gln Gly Ser Met Ser Asp Leu Asn His
210 215 220

Ile Cys Arg Val Asn Pro Arg Thr Arg His Pro Glu Met Leu Leu Arg
225 230 235 240

Pro Glu Asn Cys Pro Ala Gln His Thr Pro Ile Cys Gly Asp Asp Gly
245 250 255

Val Thr Tyr Glu Asn Asp Cys Val Met Ser Arg Ile Gly Ala Thr Arg
260 265 270

Gly Leu Leu Leu Gln Lys Val Arg Ser Gly Gln Cys Gln Thr Arg Asp
275 280 285

Gln Cys Pro Glu Thr Cys Gln Phe Asn Ser Val Cys Leu Ser Arg Arg
290 295 300

Gly Arg Pro His Cys Ser Cys Asp Arg Val Thr Cys Asp Gly Ser Tyr
305 310 315 320

Arg Pro Val Cys Ala Gln Asp Gly His Thr Tyr Asn Asn Asp Cys Trp
325 330 335

Arg Gln Gln Ala Glu Cys Arg Gln Gln Arg Ala Ile Pro Pro Lys His
340 345 350

Gln Gly Pro Cys Asp Gln Thr Pro Ser Pro Cys His Gly Val Gln Cys
355 360 365

Ala Phe Gly Ala Val Cys Thr Val Lys Asn Gly Lys Ala Glu Cys Glu
370 375 380

Cys Gln Arg Val Cys Ser Gly Ile Tyr Asp Pro Val Cys Gly Ser Asp
385 390 395 400

Gly Val Thr Tyr Gly Ser Val Cys Glu Leu Glu Ser Met Ala Cys Thr
405 410 415

Leu Gly Arg Glu Ile Gln Val Ala Arg Arg Gly Pro Cys Asp Pro Cys
420 425 430

Gly Gln Cys Arg Phe Gly Ser Leu Cys Glu Val Glu Thr Gly Arg Cys
435 440 445

Val Cys Pro Ser Glu Cys Val Glu Ser Ala Gln Pro Val Cys Gly Ser
450 455 460

Asp Gly His Thr Tyr Ala Ser Glu Cys Glu Leu His Val His Ala Cys
465 470 475 480

Thr His Gln Ile Ser Leu Tyr Val Ala Ser Ala Gly His Cys Gln Thr
485 490 495

Cys Gly Glu Lys Val Cys Thr Phe Gly Ala Val Cys Ser Ala Gly Gln
500 505 510

Cys Val Cys Pro Arg Cys Glu His Pro Pro Pro Gly Pro Val Cys Gly
515 520 525

Ser Asp Gly Val Thr Tyr Leu Ser Ala Cys Glu Leu Arg Glu Ala Ala
530 535 540

Cys Gln Gln Gln Val Gln Ile Glu Glu Ala His Ala Gly Pro Cys Glu
545 550 555 560

Pro Ala Glu Cys Gly Ser Gly Gly Ser Gly Ser Gly Glu Asp Asp Glu
565 570 575

Cys Glu Gln Glu Leu Cys Arg Gln Arg Gly Gly Ile Trp Asp Glu Asp
580 585 590

Ser Glu Asp Gly Pro Cys Val Cys Asp Phe Ser Cys Gln Ser Val Pro
595 600 605

Arg Ser Pro Val Cys Gly Ser Asp Gly Val Thr Tyr Gly Thr Glu Cys
610 615 620

Asp Leu Lys Lys Ala Arg Cys Glu Ser Gln Gln Glu Leu Tyr Val Ala
625 630 635 640

Ala Gln Gly Ala Cys Arg Gly Pro Thr Leu Ala Pro Leu Leu Pro Val
645 650 655

Ala Phe Pro His Cys Ala Gln Thr Pro Tyr Gly Cys Cys Gln Asp Asn
660 665 670

Phe Thr Ala Ala Gln Gly Val Gly Leu Ala Gly Cys Pro Ser Thr Cys
675 680 685

His Cys Asn Pro His Gly Ser Tyr Ser Gly Thr Cys Asp Pro Ala Thr
690 695 700

Gly Gln Cys Ser Cys Arg Pro Gly Val Gly Gly Leu Arg Cys Asp Arg
705 710 715 720

Cys Glu Pro Gly Phe Trp Asn Phe Arg Gly Ile Val Thr Asp Gly His
725 730 735

Ser Gly Cys Thr Pro Cys Ser Cys Asp Pro Arg Gly Ala Val Arg Asp
740 745 750

Asp Cys Glu Gln Met Thr Gly Leu Cys Ser Cys Arg Pro Gly Val Ala
755 760 765

Gly Pro Lys Cys Gly Gln Cys Pro Asp Gly Gln Val Leu Gly His Leu
770 775 780

Gly Cys Glu Ala Asp Pro Met Thr Pro Val Thr Cys Val Glu Ile His
785 790 795 800

Cys Glu Phe Gly Ala Ser Cys Val Glu Lys Ala Gly Phe Ala Gln Cys
805 810 815

Ile Cys Pro Thr Leu Thr Cys Pro Glu Ala Asn Ser Thr Lys Val Cys
820 825 830

```
Gly Ser Asp Gly Val Thr Tyr Gly Asn Glu Cys Gln Leu Lys Ala Ile
        835                 840                 845

Ala Cys Arg Gln Arg Leu Asp Ile Ser Thr Gln Ser Leu Gly Pro Cys
    850                 855                 860

Gln Glu Ser Val Thr Pro Gly Ala Ser Pro Thr Ser Ala Ser Met Thr
865                 870                 875                 880

Thr Pro Arg His Ile Leu Ser Lys Thr Leu Pro Phe Pro His Asn Ser
                885                 890                 895

Leu Pro Leu Ser Pro Gly Ser Thr Thr His Asp Trp Pro Thr Pro Leu
            900                 905                 910

Pro Ile Ser Pro His Thr Thr Val Ser Ile Pro Arg Ser Thr Ala Trp
        915                 920                 925

Pro Val Leu Thr Val Pro Pro Thr Ala Ala Ala Ser Asp Val Thr Ser
    930                 935                 940

Leu Ala Thr Ser Ile Phe Ser Glu Ser Gly Ser Ala Asn Gly Ser Gly
945                 950                 955                 960

Asp Glu Glu Leu Ser Gly Asp Glu Glu Ala Ser Gly Gly Gly Ser Gly
                965                 970                 975

Gly Leu Glu Pro Pro Val Gly Ser Ile Val Val Thr His Gly Pro Pro
            980                 985                 990

Ile Glu Arg Ala Ser Cys Tyr Asn Ser Pro Leu Gly Cys Cys Ser Asp
        995                1000                1005

Gly Lys Thr Pro Ser Leu Asp Ser Glu Gly Ser Asn Cys Pro Ala Thr
   1010                1015                1020

Lys Ala Phe Gln Gly Val Leu Glu Leu Glu Gly Val Glu Gly Gln Glu
1025                1030                1035                1040

Leu Phe Tyr Thr Pro Glu Met Ala Asp Pro Lys Ser Glu Leu Phe Gly
                1045                1050                1055

Glu Thr Ala Arg Ser Ile Glu Ser Thr Leu Asp Asp Leu Phe Arg Asn
            1060                1065                1070

Ser Asp Val Lys Lys Asp Phe Trp Ser Val Arg Leu Arg Glu Leu Gly
        1075                1080                1085

Pro Gly Lys Leu Val Arg Ala Ile Val Asp Val His Phe Asp Pro Thr
   1090                1095                1100

Thr Ala Phe Gln Ala Ser Asp Val Gly Gln Ala Leu Leu Arg Gln Ile
1105                1110                1115                1120

Gln Val Ser Arg Pro Trp Ala Leu Ala Val Arg Arg Pro Leu Gln Glu
                1125                1130                1135

His Val Arg Phe Leu Asp Phe Asp Trp Phe Pro Thr Phe Phe Thr Gly
            1140                1145                1150
```

Ala Ala Thr Gly Thr Thr Ala Ala Met Ala Thr Ala Arg Ala Thr Thr
1155 1160 1165

Val Ser Arg Leu Pro Ala Ser Ser Val Thr Pro Arg Val Tyr Pro Ser
1170 1175 1180

His Thr Ser Arg Pro Val Gly Arg Thr Thr Ala Pro Pro Thr Thr Arg
1185 1190 1195 1200

Arg Pro Pro Thr Thr Ala Thr Asn Met Asp Arg Pro Arg Thr Pro Gly
1205 1210 1215

His Gln Gln Pro Ser Lys Ser Cys Asp Ser Gln Pro Cys Leu His Gly
1220 1225 1230

Gly Thr Cys Gln Asp Gln Asp Ser Gly Lys Gly Phe Thr Cys Ser Cys
1235 1240 1245

Thr Ala Gly Arg Gly Gly Ser Val Cys Glu Lys Val Gln Pro Pro Ser
1250 1255 1260

Met Pro Ala Phe Lys Gly His Ser Phe Leu Ala Phe Pro Thr Leu Arg
1265 1270 1275 1280

Ala Tyr His Thr Leu Arg Leu Ala Leu Glu Phe Arg Ala Leu Glu Thr
1285 1290 1295

Glu Gly Leu Leu Leu Tyr Asn Gly Asn Ala Arg Gly Lys Asp Phe Leu
1300 1305 1310

Ala Leu Ala Leu Leu Asp Gly Arg Val Gln Phe Arg Phe Asp Thr Gly
1315 1320 1325

Ser Gly Pro Ala Val Leu Thr Ser Leu Val Pro Val Glu Pro Gly Arg
1330 1335 1340

Trp His Arg Leu Glu Leu Ser Arg His Trp Arg Gln Gly Thr Leu Ser
1345 1350 1355 1360

Val Asp Gly Glu Thr Pro Val Val Gly Glu Ser Pro Ser Gly Thr Asp
1365 1370 1375

Gly Leu Asn Leu Asp Thr Asn Leu Tyr Val Gly Gly Ile Pro Glu Glu
1380 1385 1390

Gln Val Ala Met Val Leu Asp Arg Thr Ser Val Gly Val Gly Leu Lys
1395 1400 1405

Gly Cys Ile Arg Met Leu Asp Ile Asn Asn Gln Gln Leu Glu Leu Ser
1410 1415 1420

Asp Trp Gln Arg Ala Ala Val Gln Ser Ser Gly Val Gly Glu Cys Gly
1425 1430 1435 1440

Asp His Pro Cys Leu Pro Asn Pro Cys His Gly Gly Ala Leu Cys Gln
1445 1450 1455

Ala Leu Glu Ala Gly Met Phe Leu Cys Gln Cys Pro Pro Gly Arg Phe
1460 1465 1470

Gly Pro Thr Cys Ala Asp Glu Lys Ser Pro Cys Gln Pro Asn Pro Cys
1475 1480 1485

His Gly Ala Ala Pro Cys Arg Val Leu Ser Ser Gly Gly Ala Lys Cys
1490 1495 1500

Glu Cys Pro Leu Gly Arg Ser Gly Thr Phe Cys Gln Thr Val Leu Glu
1505 1510 1515 1520

Thr Ala Gly Ser Arg Pro Phe Leu Ala Asp Phe Asn Gly Phe Ser Tyr
1525 1530 1535

Leu Glu Leu Lys Gly Leu His Thr Phe Glu Arg Asp Leu Gly Glu Lys
1540 1545 1550

Met Ala Leu Glu Met Val Phe Leu Ala Arg Gly Pro Ser Gly Leu Leu
1555 1560 1565

Leu Tyr Asn Gly Gln Lys Thr Asp Gly Lys Gly Asp Phe Val Ser Leu
1570 1575 1580

Ala Leu His Asn Arg His Leu Glu Phe Cys Tyr Asp Leu Gly Lys Gly
1585 1590 1595 1600

Ala Ala Val Ile Arg Ser Lys Glu Pro Ile Ala Leu Gly Thr Trp Val
1605 1610 1615

Arg Val Phe Leu Glu Arg Asn Gly Arg Lys Gly Ala Leu Gln Val Gly
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Asp Gly Pro Arg Val Leu Gly Glu Ser Pro Lys Ser Arg Lys Val Pro
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His Thr Met Leu Asn Leu Lys Glu Pro Leu Tyr Ile Gly Gly Ala Pro
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Asp Phe Ser Lys Leu Ala Arg Gly Ala Ala Val Ser Ser Gly Phe Ser
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Gly Val Ile Gln Leu Val Ser Leu Arg Gly His Gln Leu Leu Thr Gln
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Glu His Val Leu Arg Ala Val Asp Val Ser Pro Phe Ala Asp His Pro
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Cys Thr Gln Ala Leu Gly Asn Pro Cys Leu Asn Gly Gly Ser Cys Val
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Pro Arg Glu Ala Thr Tyr Glu Cys Leu Cys Pro Gly Gly Phe Ser Gly
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Leu His Cys Glu Lys Gly Leu Val Glu Lys Ser Val Gly Asp Leu Glu
1745 1750 1755 1760

Thr Leu Ala Phe Asp Gly Arg Thr Tyr Ile Glu Tyr Leu Asn Ala Val
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Ile Glu Ser Glu Lys Ala Leu Gln Ser Asn His Phe Glu Leu Ser Leu
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Glu Arg Ala Asp Tyr Met Ala Leu Ala Ile Val Asp Gly His Leu Gln
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Leu Ser Tyr Asp Leu Gly Ser Gln Pro Val Val Leu Arg Ser Thr Val
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Lys Val Asn Thr Asn Arg Trp Leu Arg Ile Arg Ala His Arg Glu His
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Arg Glu Gly Ser Leu Gln Val Gly Asn Glu Ala Pro Val Thr Gly Ser
           1860                1865                1870

Ser Pro Leu Gly Ala Thr Gln Leu Asp Thr Asp Gly Ala Leu Trp Leu
       1875                1880                1885

Gly Gly Leu Gln Lys Leu Pro Val Gly Gln Ala Leu Pro Lys Ala Tyr
   1890                1895                1900

Gly Thr Gly Phe Val Gly Cys Leu Arg Asp Val Val Val Gly His Arg
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Gln Leu His Leu Leu Glu Asp Ala Val Thr Lys Pro Glu Leu Arg Pro
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Cys Pro Thr Pro
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His Gly Ala Ala Pro Cys Arg Val Leu Pro Glu Gly Gly Ala Gln Cys
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Glu Cys Pro Leu Gly Arg Glu Gly Thr Phe Cys Gln Thr Ala Ser Gly
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Gln Asp Gly Ser Gly Pro Phe Leu Ala Asp Phe Asn Gly Phe Ser His
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Leu Glu Leu Arg Gly Leu His Thr Phe Ala Arg Asp Leu Gly Glu Lys
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Met Ala Leu Glu Val Val Phe Leu Ala Arg Gly Pro Ser Gly Leu Leu
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Leu Tyr Asn Gly Gln Lys Thr Asp Gly Lys Gly Asp Phe Val Ser Leu
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Ala Leu Arg Asp Arg Arg Leu Glu Phe Arg Tyr Asp Leu Gly Lys Gly
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Ala Ala Val Ile Arg Ser Arg Glu Pro Val Thr Leu Gly Ala Trp Thr
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Arg Val Ser Leu Glu Arg Asn Gly Arg Lys Gly Ala Leu Arg Val Gly
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Asp Gly Pro Arg Val Leu Gly Glu Ser Pro Lys Ser Arg Lys Val Pro
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His Thr Val Leu Asn Leu Lys Glu Pro Leu Tyr Val Gly Gly Ala Pro
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Asp Phe Ser Lys Leu Ala Arg Ala Ala Ala Val Ser Ser Gly Phe Asp
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Gly Ala Ile Gln Leu Val Ser Leu Gly Gly Arg Gln Leu Leu Thr Pro
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Glu His Val Leu Arg Gln Val Asp Val Thr Ser Phe Ala Gly His Pro
245 250 255

Cys Thr Arg Ala Ser Gly His Pro Cys Leu Asn Gly Ala Ser Cys Val
260 265 270

Pro Arg Glu Ala Ala Tyr Val Cys Leu Cys Pro Gly Gly Phe Ser Gly
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Pro His Cys Glu Lys Gly Leu Val Glu Lys Ser Ala Gly Asp Val Asp
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Thr Leu Ala Phe Asp Gly Arg Thr Phe Val Glu Tyr Leu Asn Ala Val
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Thr Glu Ser Glu Leu Ala Asn Glu Ile Pro Val Glu Lys Ala Leu Gln
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Ser Asn His Phe Glu Leu Ser Leu Arg Thr Glu Ala Thr Gln Gly Leu
340 345 350

Val Leu Trp Ser Gly Lys Ala Thr Glu Arg Ala Asp Tyr Val Ala Leu
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Ala Ile Val Asp Gly His Leu Gln Leu Ser Tyr Asn Leu Gly Ser Gln
370 375 380

Pro Val Val Leu Arg Ser Thr Val Pro Val Asn Thr Asn Arg Trp Leu
385 390 395 400

Arg Val Val Ala His Arg Glu Gln Arg Glu Gly Ser Leu Gln Val Gly
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Gly Pro Ala Leu Pro Lys Ala Tyr Gly Thr Gly Phe Val Gly Cys Leu
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Arg Asp Val Val Val Gly Arg His Pro Leu His Leu Leu Glu Asp Ala
465 470 475 480

Val Thr Lys Pro Glu Leu Arg Pro Cys Pro Thr Pro
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